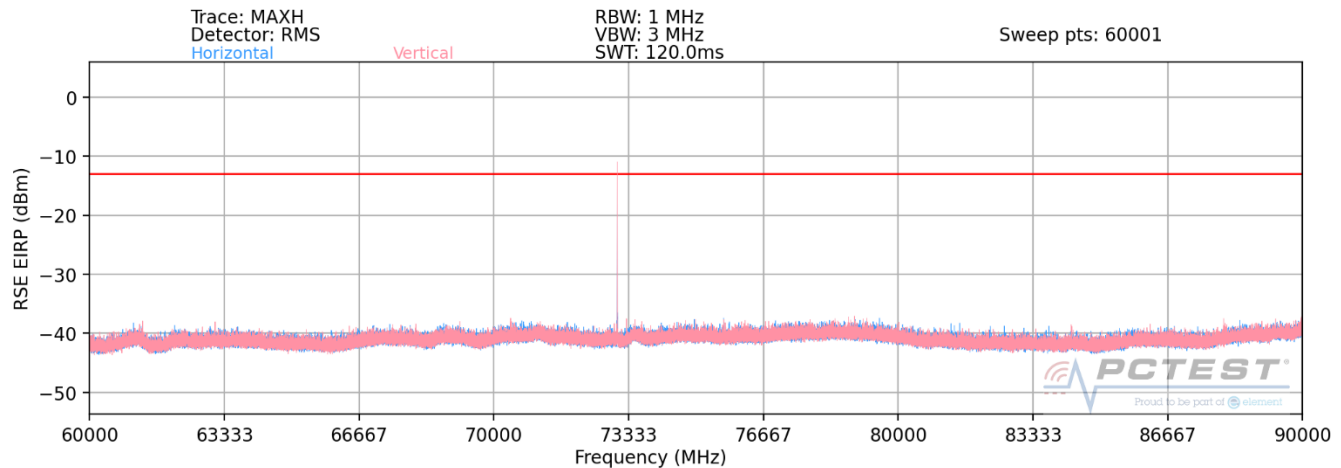


60GHz - 90GHz



Plot 7-38. Ant 1-n258-R1 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

Spurious Emissions EIRP Sample Calculation (n258-R1)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
71105.90	Low	50	2Tx	QPSK	H	145	286	-17.85	-13.00	-4.85
73051.31	Mid	50	2Tx	QPSK	H	148	286	-22.53	-13.00	-9.53
73202.60	High	50	2Tx	QPSK	H	144	286	-16.34	-13.00	-3.34

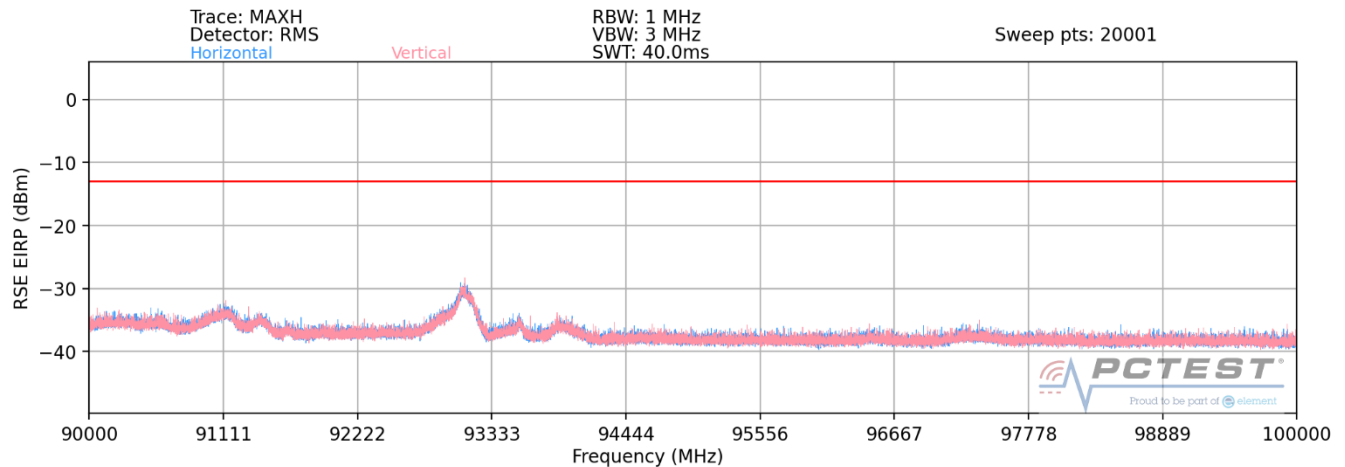
Table 7-51. Ant 1 - 2Tx - Spurious Emissions Table (60GHz - 90GHz)

Notes

- 1) The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
- 2) The Pre-scan was performed with Detector set to "RMS" and the Trace set to "Max Hold" and the above RSE measurements are taken with TRP.

FCC ID: A3LSMS901U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 73 of 186

90GHz - 100GHz



Plot 7-39. Ant 1-n258-R1 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

Spurious Emissions EIRP Sample Calculation (n258-R1)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
93024.92	Low	50	2Tx	QPSK	V	-	-	-42.02	-13.00	-29.02
97387.49	Mid	50	2Tx	QPSK	V	-	-	-46.43	-13.00	-33.43
98009.19	High	50	2Tx	QPSK	V	-	-	-46.83	-13.00	-33.83

Table 7-52. Ant 1 - 2Tx - Spurious Emissions Table (90GHz - 100GHz)

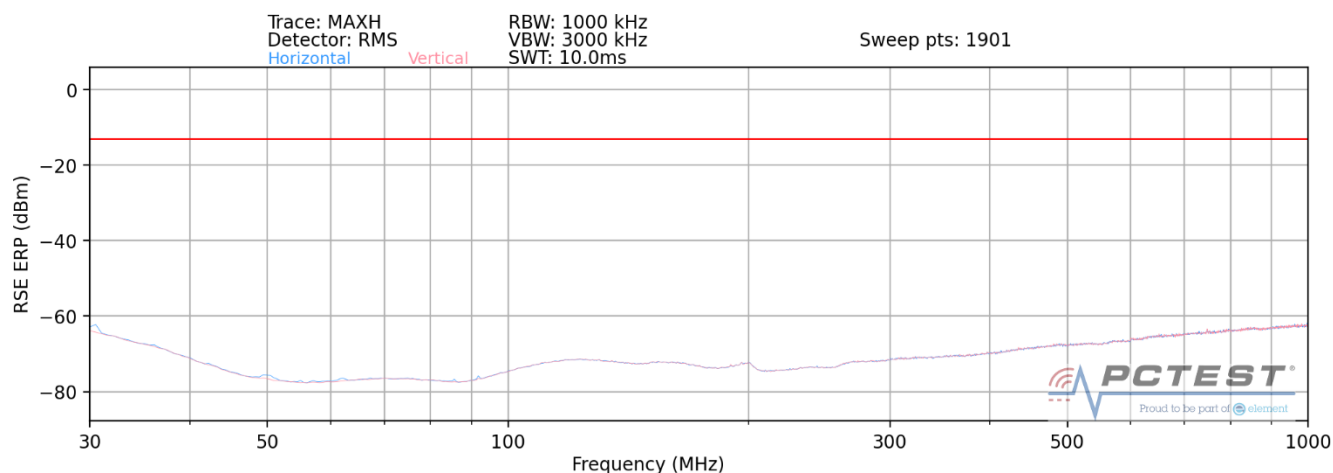
Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.

FCC ID: A3LSMS901U	 PCTEST® Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 74 of 186

Band n258-R1 (N Patch)

30MHz - 1GHz



Plot 7-33. Ant 2- n258-R1 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor Band 2)

Spurious Emissions ERP Sample Calculation (n258-R1)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE ERP level is calculated by applying the additional factors shown below for a test distance of 3 meter.

$$\text{RSE ERP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8 - 2.15 \text{ (dB)}$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Antenna Height [cm]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
570.56	Low	50	2Tx	QPSK	H	-	-	-65.74	-13.00	-52.74
748.31	Mid	50	2Tx	QPSK	H	-	-	-62.87	-13.00	-49.87
976.07	High	50	2Tx	QPSK	H	-	-	-67.90	-13.00	-54.90

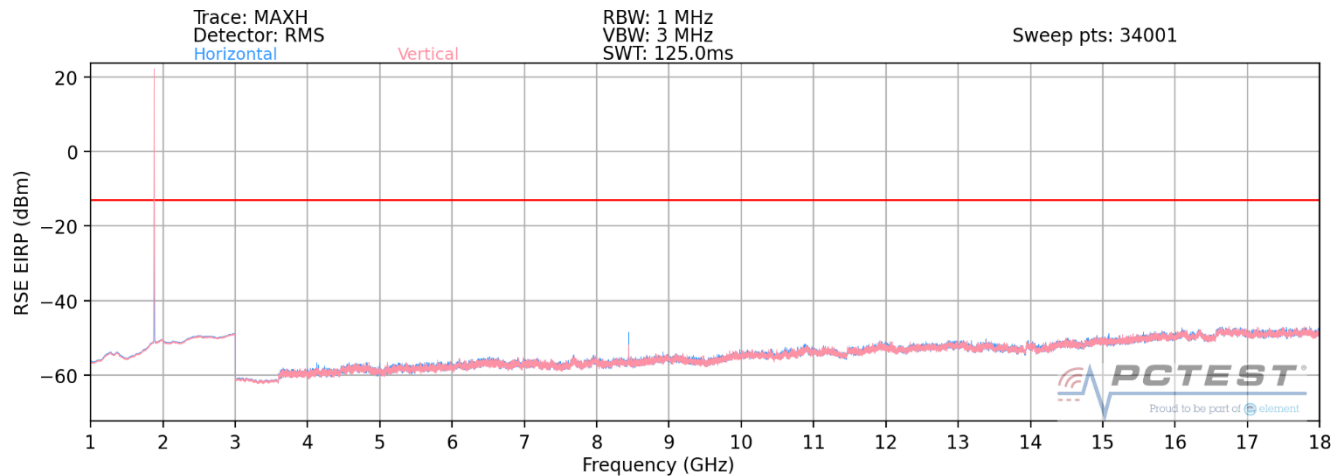
Table 7-53. Ant 2 – 2Tx - Spurious Emissions Table (30MHz - 1GHz)

Notes

The RSE ERP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 3 meter.

FCC ID: A3LSMS901U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 75 of 186

1GHz - 18GHz



Plot 7-34. Ant 2-n258-R1 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor Band 2)

Spurious Emissions EIRP Sample Calculation (n258-R1)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 3 meter.

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Antenna Height [cm]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
4332.50	Low	50	2Tx	QPSK	H	-	-	-61.57	-13.00	-48.57
8442.00	Mid	50	2Tx	QPSK	H	334	242	-55.36	-13.00	-42.36
16211.92	High	50	2Tx	QPSK	H	-	-	-55.29	-13.00	-42.29

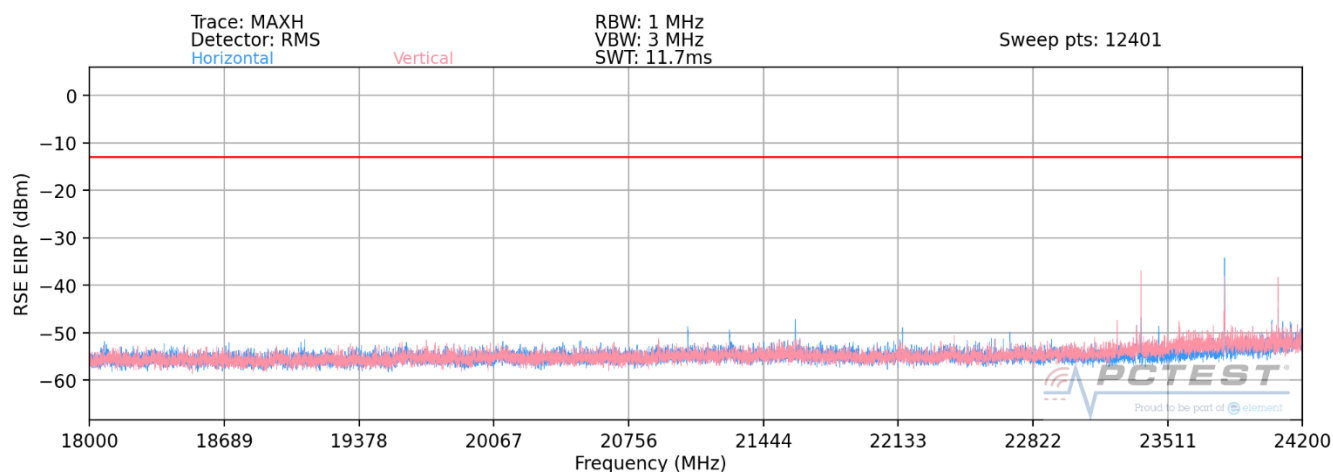
Table 7-54. Ant 2 - 2Tx - Spurious Emissions Table (1GHz - 18GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 3 meter.

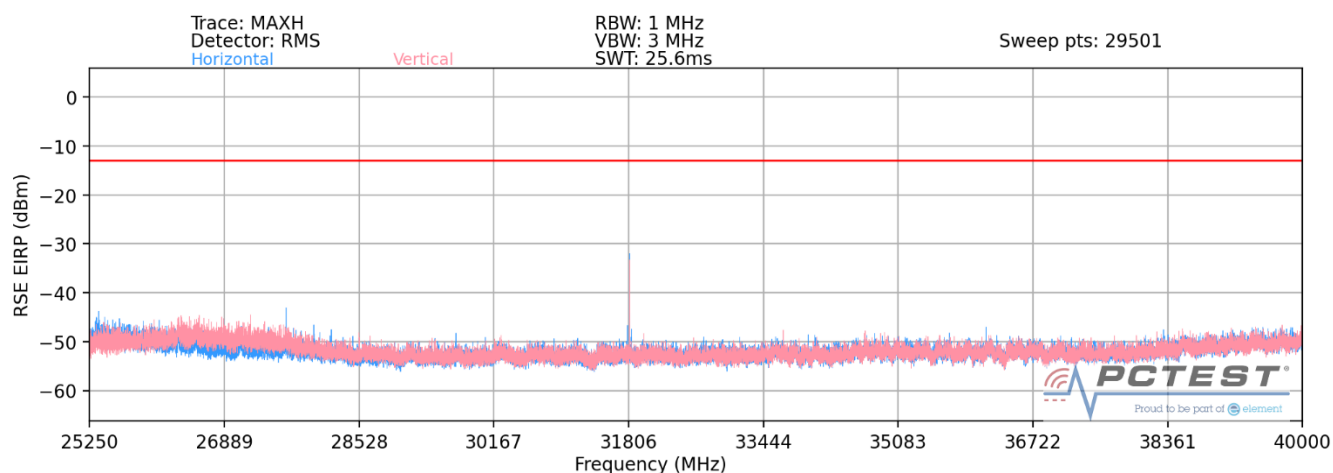
FCC ID: A3LSMS901U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 76 of 186

18GHz - 24.2GHz



Plot 7-35. Ant 2-n258-R1 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

25.25GHz - 40GHz



Plot 7-36. Ant 2-n258-R1 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

FCC ID: A3LSMS901U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 77 of 186

Spurious Emissions EIRP Sample Calculation (n258-R1)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Antenna Height [cm]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
23374.00	Low	50	2Tx	QPSK	V	31	150	-43.02	-13.00	-30.02
23348.58	Low	50	2Tx	QPSK	H	230	150	-47.08	-13.00	-34.08
23350.00	Low	50	2Tx	QPSK	H	282	150	-52.57	-13.00	-39.57
23801.36	Low	50	2Tx	QPSK	V	295	150	-43.15	-13.00	-30.15
23802.70	Low	50	2Tx	QPSK	V	315	150	-44.11	-13.00	-31.11
23802.10	Low	50	2Tx	QPSK	H	222	150	-42.38	-13.00	-29.38
23800.00	Low	50	2Tx	QPSK	H	256	150	-47.89	-13.00	-34.89
24624.54	Mid	50	2Tx	QPSK	H	189	150	-37.43	-13.00	-24.43
27427.99	High	50	2Tx	QPSK	H	246	150	-46.15	-13.00	-33.15
31816.50	High	50	2Tx	QPSK	H	21	150	-38.84	-13.00	-25.84

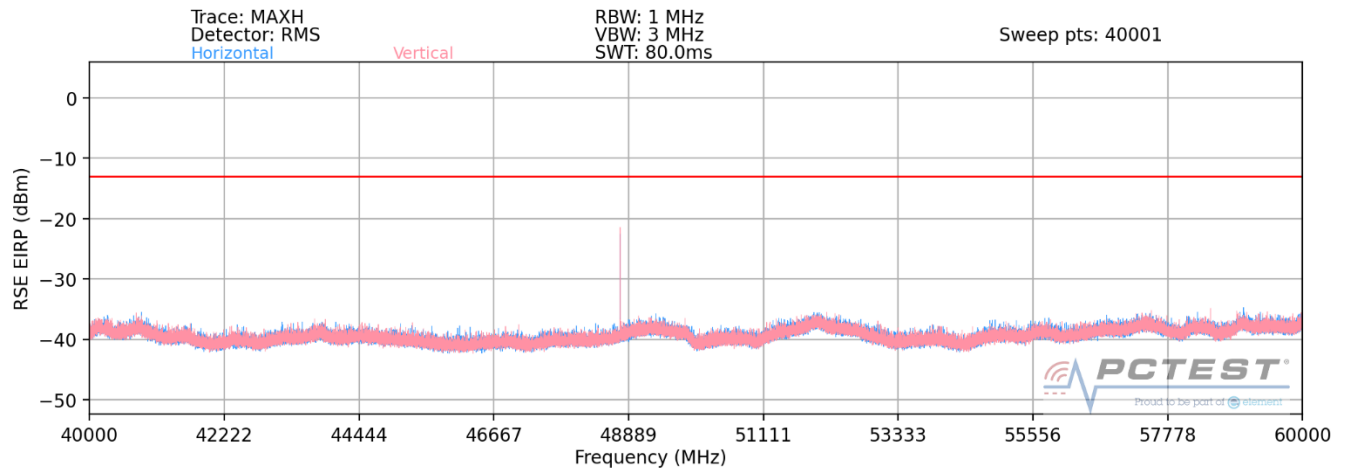
Table 7-55. Ant 2 - 2Tx - Spurious Emissions Table (18GHz - 40GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 1 meter.

FCC ID: A3LSMS901U	 PCTEST [®] Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 78 of 186

40GHz - 60GHz



Plot 7-37. Ant 2-n258-R1 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

Spurious Emissions EIRP Sample Calculation (n258-R1)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
48700.55	Low	50	2Tx	QPSK	V	268	366	-22.93	-13.00	-9.93
48851.03	Low	50	2Tx	QPSK	V	271	3	-22.65	-13.00	-9.65
51334.74	Mid	50	2Tx	QPSK	V	269	6	-23.64	-13.00	-10.64
51484.92	High	50	2Tx	QPSK	V	8	271	-22.31	-13.00	-9.31

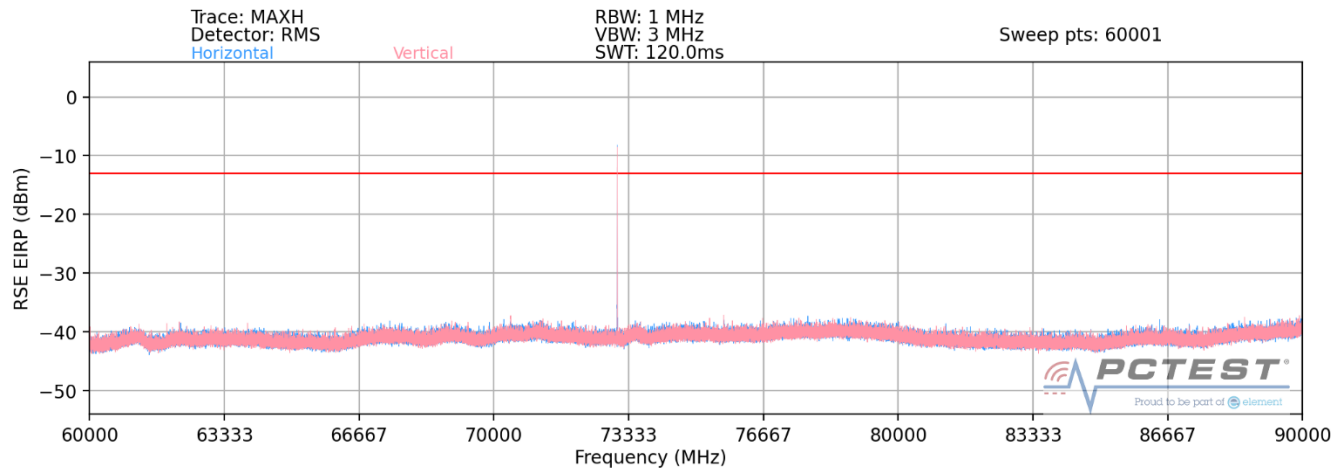
Table 7-56. Ant 2 - 2Tx - Spurious Emissions Table (40GHz - 60GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1.5 meter.

FCC ID: A3LSMS901U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 79 of 186

60GHz - 90GHz



Plot 7-38. Ant 2-n258-R1 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

Spurious Emissions EIRP Sample Calculation (n258-R1)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
72826.32	Low	50	2Tx	QPSK	V	84	82	-27.82	-13.00	-14.82
73051.15	Mid	50	2Tx	QPSK	V	86	82	-29.27	-13.00	-16.27
73275.87	High	50	2Tx	QPSK	V	85	82	-23.23	-13.00	-10.23

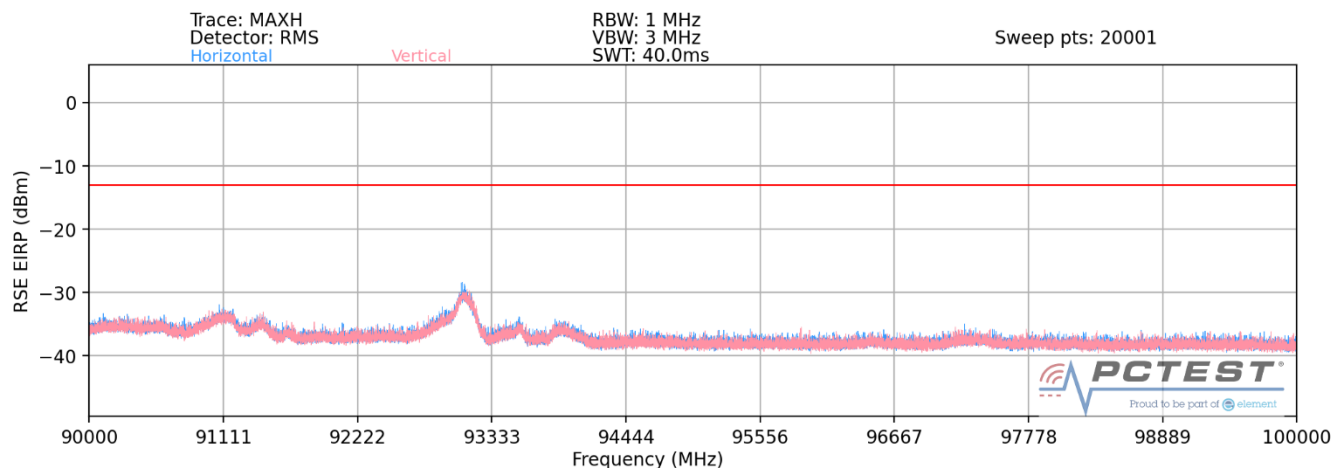
Table 7-57. Ant 2 - 2Tx - Spurious Emissions Table (60GHz - 90GHz)

Notes

- 1) The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
- 2) The Pre-scan was performed with Detector set to "RMS" and the Trace set to "Max Hold" and the above RSE measurements are taken with TRP.

FCC ID: A3LSMS901U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 80 of 186

90GHz - 100GHz



Plot 7-39. Ant 2-n258-R1 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

Spurious Emissions EIRP Sample Calculation (n258-R1)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
95994.88	Low	50	2Tx	QPSK	V	-	-	-46.82	-13.00	-33.82
97382.46	Mid	50	2Tx	QPSK	V	-	-	-46.17	-13.00	-33.17
98016.48	High	50	2Tx	QPSK	V	-	-	-46.85	-13.00	-33.85

Table 7-58. Ant 2 - 2Tx - Spurious Emissions Table (90GHz - 100GHz)

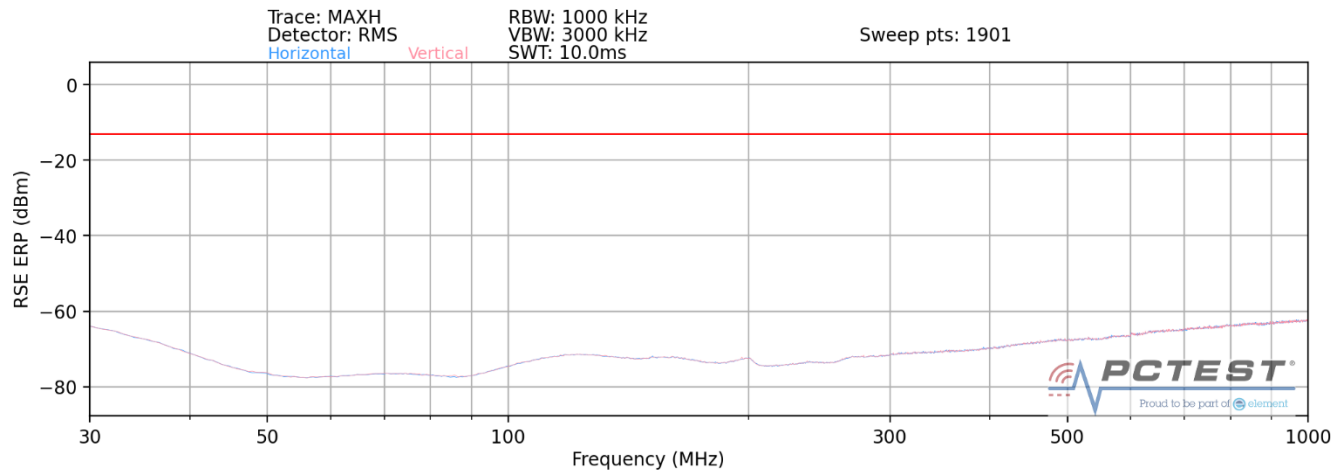
Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.

FCC ID: A3LSMS901U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 81 of 186

Band n258-R2 (M Patch)

30MHz - 1GHz



Plot 7-33. Ant 1- n258-R2 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor Band 2)

Spurious Emissions ERP Sample Calculation (n258-R2)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE ERP level is calculated by applying the additional factors shown below for a test distance of 3 meter.

$$\text{RSE ERP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8 - 2.15 \text{ (dB)}$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Antenna Height [cm]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
513.00	Low	50	2Tx	QPSK	H	150	307	-63.87	-13.00	-52.71
732.99	Mid	50	2Tx	QPSK	H	135	351	-62.19	-13.00	-53.65
994.00	High	50	2Tx	QPSK	H	199	275	-60.51	-13.00	-54.14

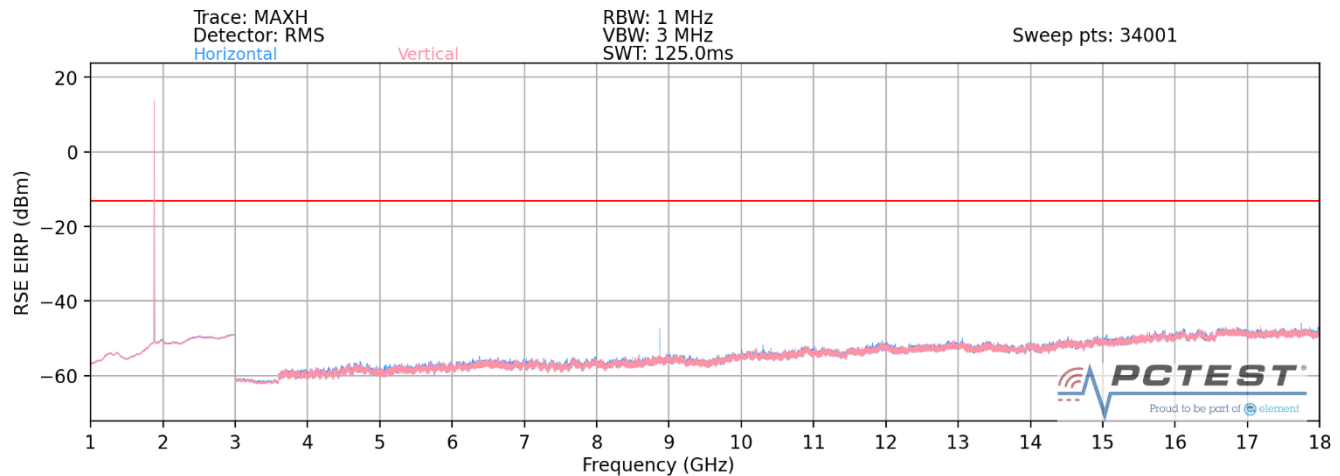
Table 7-59. Ant 1 – 2Tx - Spurious Emissions Table (30MHz - 1GHz)

Notes

The RSE ERP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 3 meter.

FCC ID: A3LSMS901U	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset	Page 82 of 186

1GHz - 18GHz



Plot 7-34. Ant 1-n258-R2 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor Band 2)

Spurious Emissions EIRP Sample Calculation (n258-R2)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 3 meter.

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Antenna Height [cm]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
2491.50	Low	50	2Tx	QPSK	H	-	-	-74.56	-13.00	-61.56
8872.30	Mid	50	2Tx	QPSK	H	341	201	-54.89	-13.00	-41.89
10200.00	High	50	2Tx	QPSK	H	-	-	-64.28	-13.00	-51.28
17800.00	High	50	2Tx	QPSK	H	-	-	-59.53	-13.00	-46.53

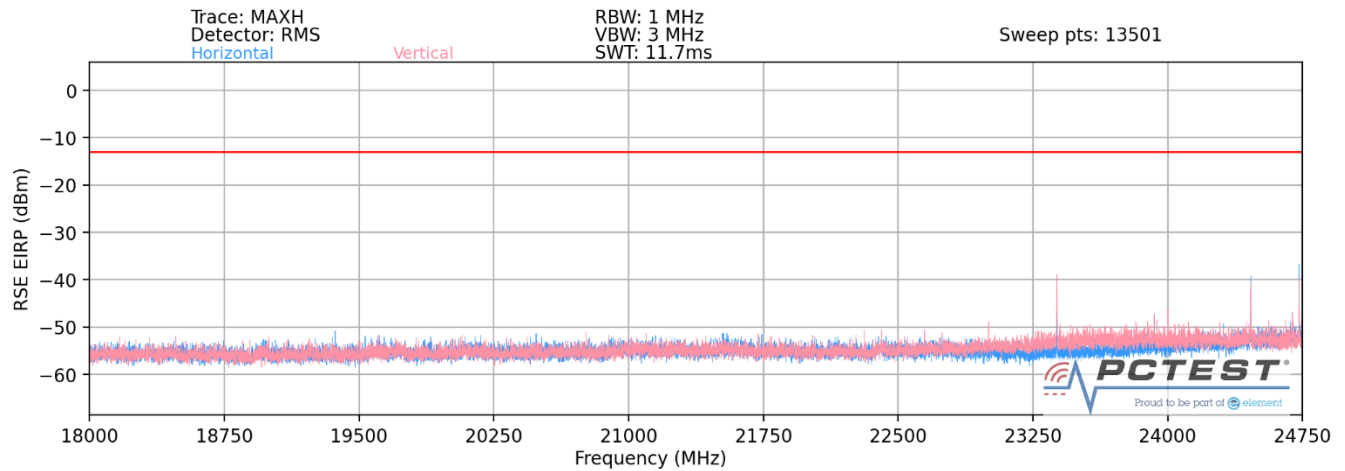
Table 7-60. Ant 1 - 2Tx - Spurious Emissions Table (1GHz - 18GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 3 meter.

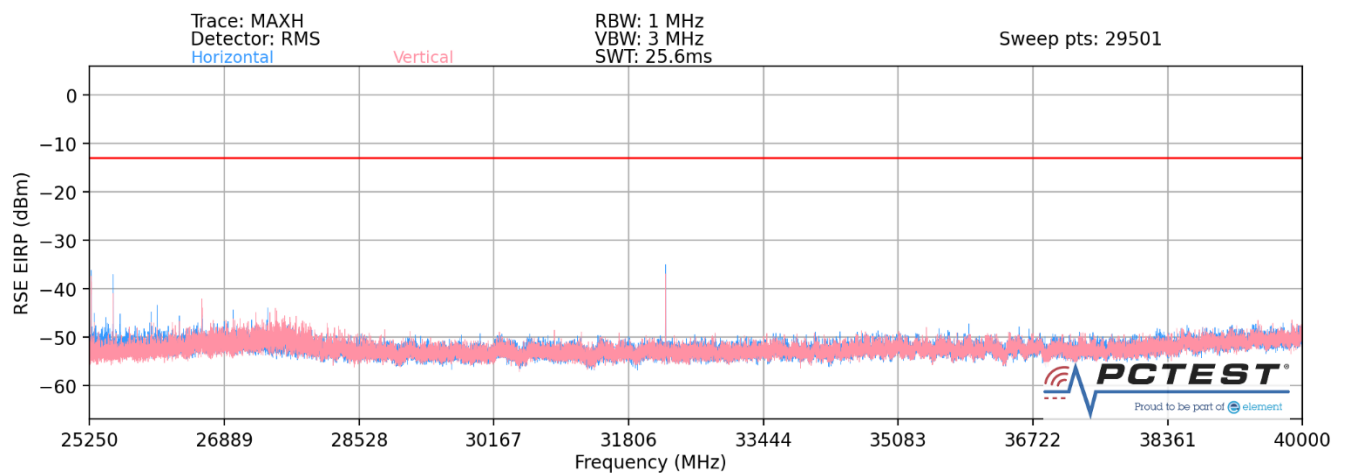
FCC ID: A3LSMS901U	 PCTEST® Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 83 of 186

18GHz - 24.75GHz



Plot 7-35. Ant 1-n258-R2 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

25.25GHz - 40GHz



Plot 7-36. Ant 1-n258-R2 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

FCC ID: A3LSMS901U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 84 of 186

Spurious Emissions EIRP Sample Calculation (n258-R2)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Antenna Height [cm]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
23383.00	Low	50	2Tx	QPSK	V	24	150	-46.64	-13.00	-33.64
24463.00	Mid	50	2Tx	QPSK	H	22	150	-48.70	-13.00	-35.70
24731.67	High	50	2Tx	QPSK	H	272	150	-36.84	-13.00	-23.84
32255.50	High	50	2Tx	QPSK	H	42	150	-44.66	-13.00	-31.66
25537.00	High	50	2Tx	QPSK	H	48	150	-44.71	-13.00	-31.71
25269.67	High	50	2Tx	QPSK	H	350	150	-43.03	-13.00	-30.03

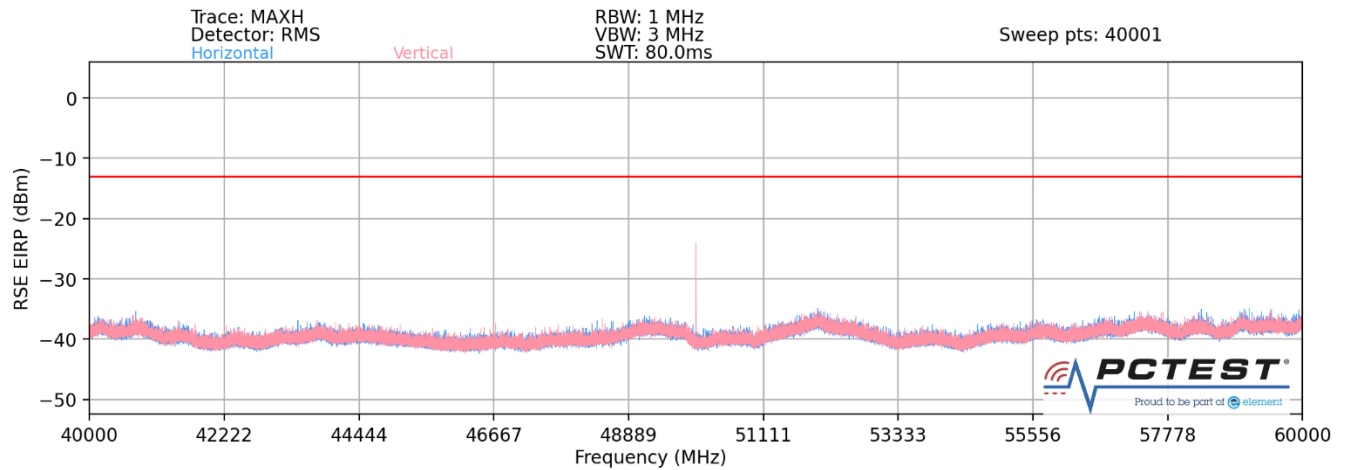
Table 7-61. Ant 1 - 2Tx - Spurious Emissions Table (18GHz- 40GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 1 meter.

FCC ID: A3LSMS901U	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset	Page 85 of 186

40GHz - 60GHz



Plot 7-37. Ant 1-n258-R2 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

Spurious Emissions EIRP Sample Calculation (n258-R2)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
45000.00	Low	50	2Tx	QPSK	V	-	-	-47.22	-13.00	-34.22
50000.00	Mid	50	2Tx	QPSK	V	249	263	-24.28	-13.00	-11.28
52634.00	High	50	2Tx	QPSK	V	338	232	-40.49	-13.00	-27.49
58000.00	High	50	2Tx	QPSK	V	-	-	-47.17	-13.00	-34.17
42000.00	Low	50	2Tx	QPSK	V	-	-	-48.34	-13.00	-35.34

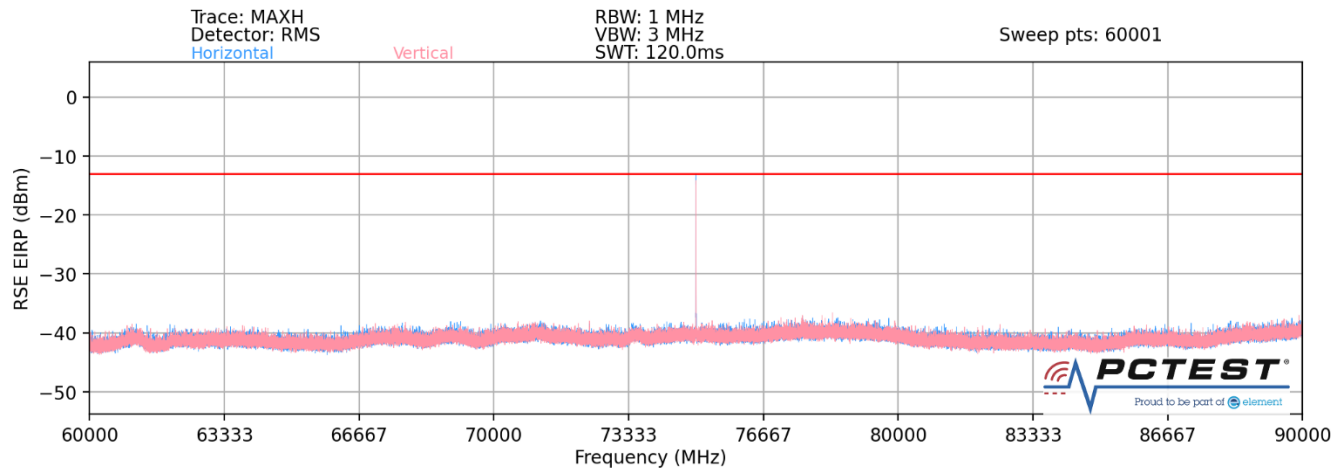
Table 7-62. Ant 1 - 2Tx - Spurious Emissions Table (40GHz - 60GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1.5 meter.

FCC ID: A3LSMS901U	 PCTEST® Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 86 of 186

60GHz - 90GHz



Plot 7-38. Ant 1-n258-R2 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

Spurious Emissions EIRP Sample Calculation (n258-R2)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
74320.00	Low	50	2Tx	QPSK	H	197	73	-16.58	-13.00	-3.58
75001.18	Mid	50	2Tx	QPSK	H	206	71	-21.55	-13.00	-8.55
75676.00	High	50	2Tx	QPSK	H	320	122	-16.54	-13.00	-3.54

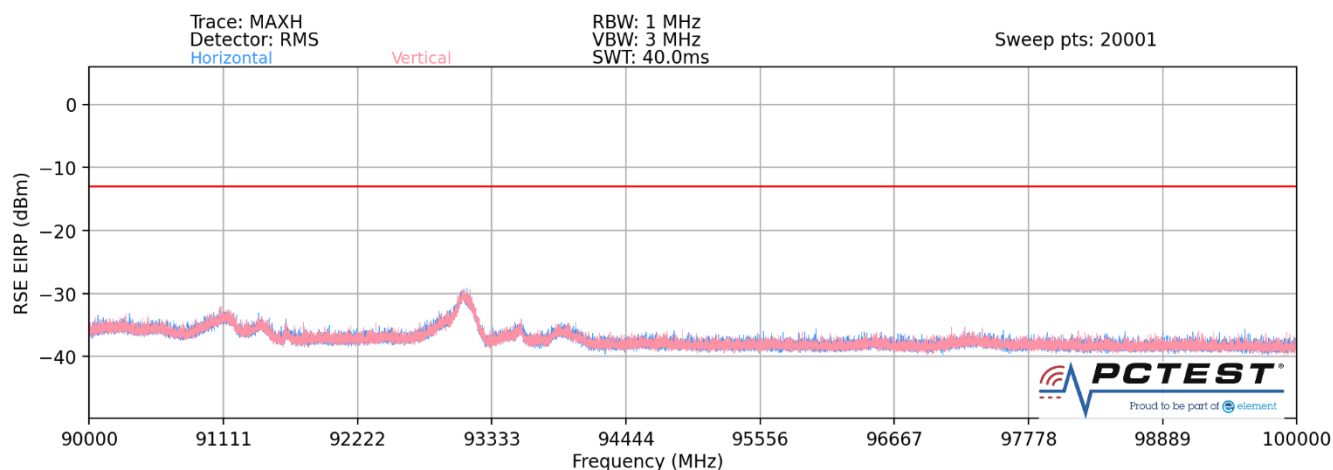
Table 7-63. Ant 1 - 2Tx - Spurious Emissions Table (60GHz - 90GHz)

Notes

- 1) The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
- 2) The Pre-scan was performed with Detector set to "RMS" and the Trace set to "Max Hold" and the above RSE measurements for Mid Channel are taken with TRP.

FCC ID: A3LSMS901U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 87 of 186

90GHz - 100GHz



Plot 7-39. Ant 1-n258-R2 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

Spurious Emissions EIRP Sample Calculation (n258-R2)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
96000.75	Low	50	2Tx	QPSK	H	-	-	-46.75	-13.00	-33.75
99008.39	Mid	50	2Tx	QPSK	H	-	-	-46.95	-13.00	-33.95
101006.63	High	50	2Tx	QPSK	H	-	-	-46.56	-13.00	-33.56

Table 7-64. Ant 1 - 2Tx - Spurious Emissions Table (90GHz - 100GHz)

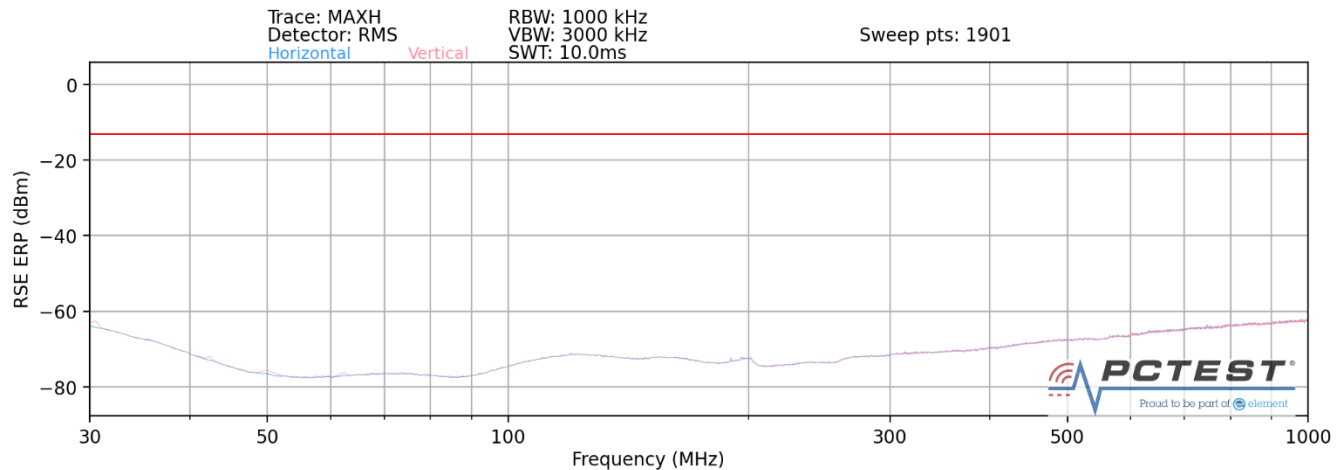
Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.

FCC ID: A3LSMS901U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 88 of 186

Band n258-R2 (N Patch)

30MHz - 1GHz



Plot 7-33. Ant 2- n258-R2 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor Band 2)

Spurious Emissions ERP Sample Calculation (n258-R2)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE ERP level is calculated by applying the additional factors shown below for a test distance of 3 meter.

$$\text{RSE ERP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8 - 2.15 \text{ (dB)}$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Antenna Height [cm]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
185.43	Low	50	2Tx	QPSK	V	-	-	-67.43	-13.00	-54.43
747.80	Mid	50	2Tx	QPSK	H	-	-	-61.78	-13.00	-48.78
920.86	High	50	2Tx	QPSK	H	-	-	-60.03	-13.00	-47.03

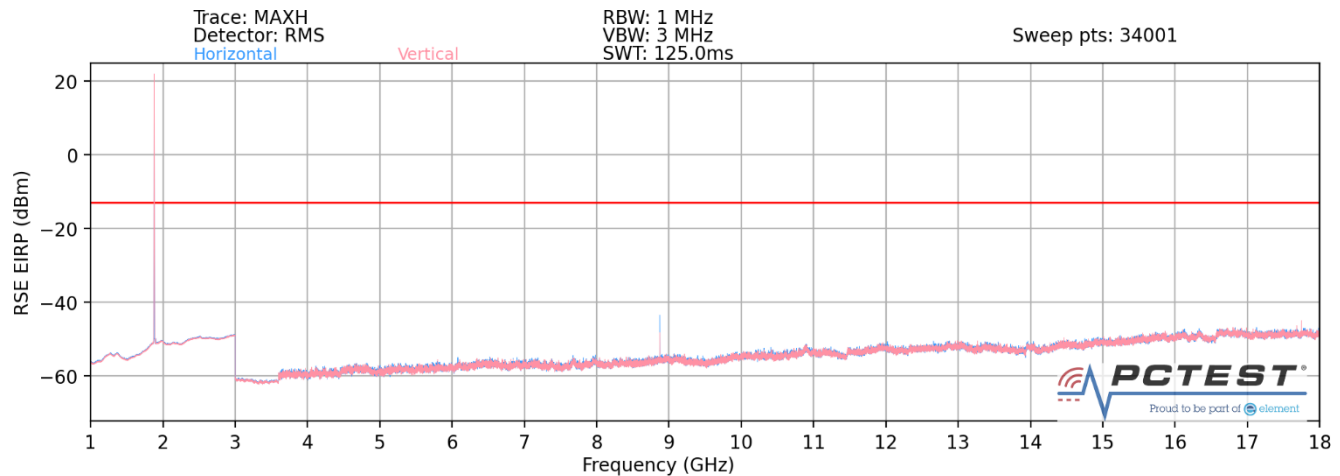
Table 7-65. Ant 2 – 2Tx - Spurious Emissions Table (30MHz - 1GHz)

Notes

The RSE ERP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 3 meter.

FCC ID: A3LSMS901U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 89 of 186

1GHz - 18GHz



Plot 7-34. Ant 2-n258-R2 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor Band 2)

Spurious Emissions EIRP Sample Calculation (n258-R2)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 3 meter.

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Antenna Height [cm]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
4673.30	Low	50	2Tx	QPSK	H	-	-	-72.69	-13.00	-59.69
8872.30	Mid	50	2Tx	QPSK	H	325	215	-44.82	-13.00	-31.82
14620.19	High	50	2Tx	QPSK	H	-	-	-64.28	-13.00	-51.28
17792.30	High	50	2Tx	QPSK	H	-	-	-54.01	-13.00	-41.01

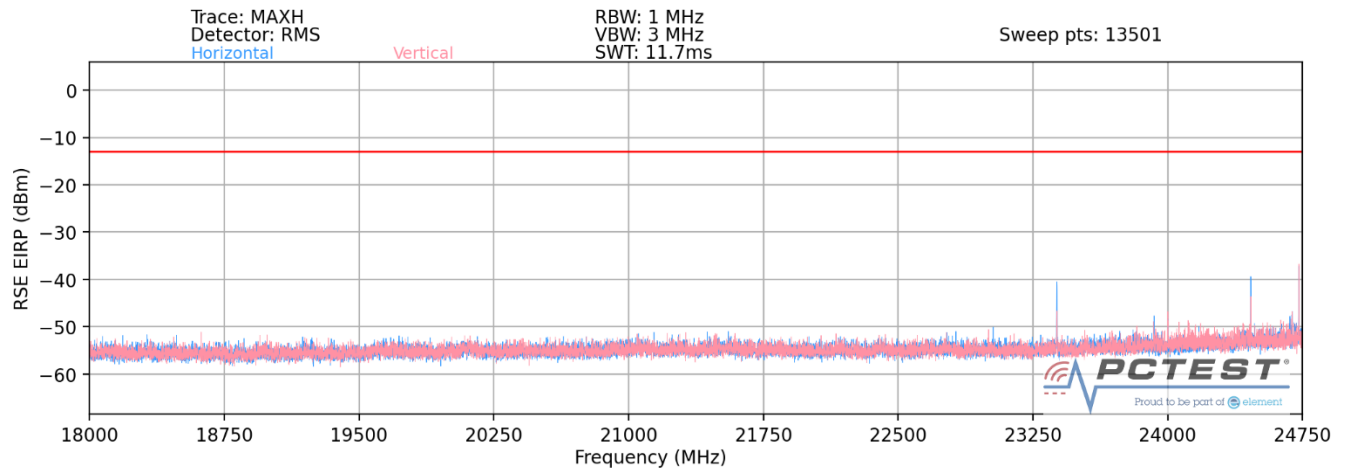
Table 7-49. Ant 2 - 2Tx - Spurious Emissions Table (1GHz - 18GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 3 meter.

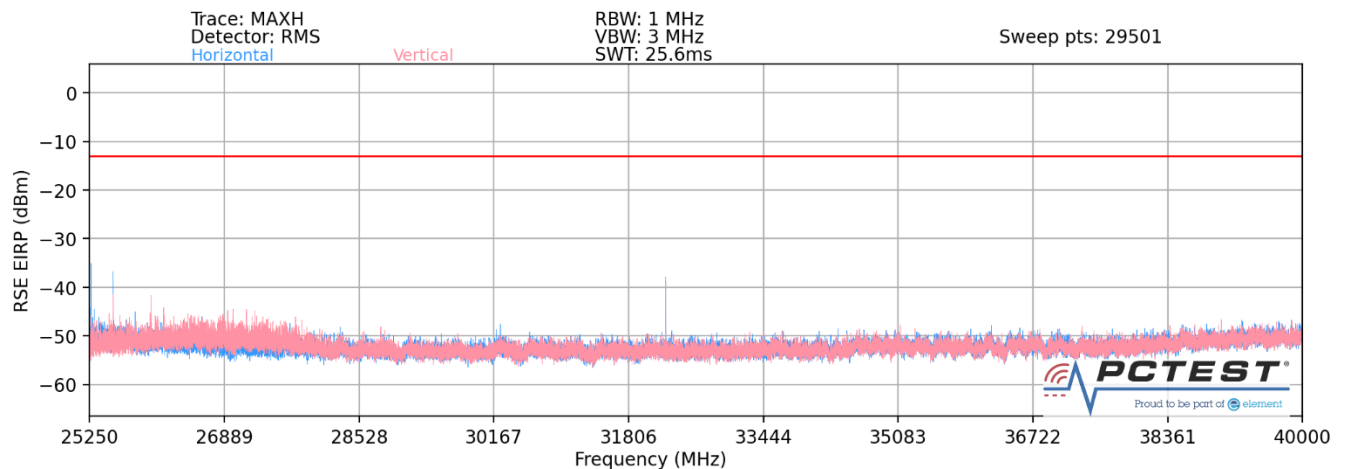
FCC ID: A3LSMS901U	 PCTEST® Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 90 of 186

18GHz – 24.75GHz



Plot 7-35. Ant 2-n258-R2 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

25.25GHz - 40GHz



Plot 7-36. Ant 2-n258-R2 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

FCC ID: A3LSMS901U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 91 of 186

Spurious Emissions EIRP Sample Calculation (n258-R2)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Antenna Height [cm]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
23383.10	Mid	50	2Tx	QPSK	H	285	150	-46.59	-13.00	-33.59
24731.00	Low	50	2Tx	QPSK	V	31	150	-40.08	-13.00	-27.08
24462.50	Mid	50	2Tx	QPSK	H	319	150	-44.69	-13.00	-31.69
24001.00	Mid	50	2Tx	QPSK	H	30	150	-51.90	-13.00	-38.90
25269.00	Mid	50	2Tx	QPSK	H	284	150	-43.88	-13.00	-30.88
25537.00	Mid	50	2Tx	QPSK	H	287	150	-43.19	-13.00	-30.19
25997.89	Mid	50	2Tx	QPSK	H	313	150	-51.64	-13.00	-38.64
32255.30	High	50	2Tx	QPSK	H	293	150	-48.65	-13.00	-35.65

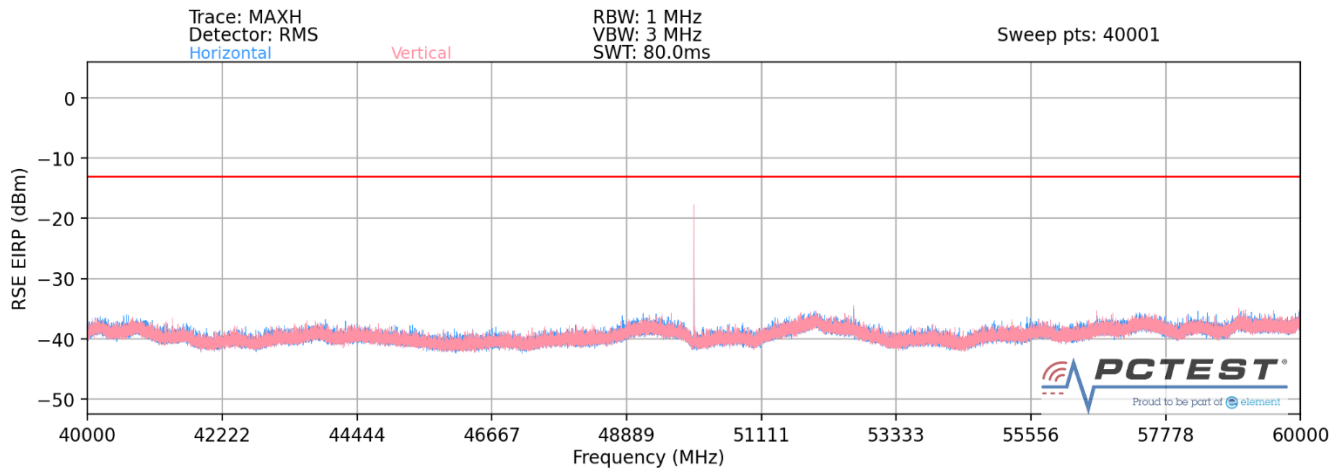
Table 7-67. Ant 2 - 2Tx - Spurious Emissions Table (18GHz - 40GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 1 meter.

FCC ID: A3LSMS901U	 PCTEST® Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 92 of 186

40GHz - 60GHz



Plot 7-37. Ant 2-n258-R2 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

Spurious Emissions EIRP Sample Calculation (n258-R2)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
41985.00	Low	50	2Tx	QPSK	H	-	-	-48.85	-13.00	-35.85
45009.23	Low	50	2Tx	QPSK	H	-	-	-48.10	-13.00	-35.10
50001.07	Mid	50	2Tx	QPSK	H	175	273	-22.40	-13.00	-9.40
52634.00	High	50	2Tx	QPSK	H	206	188	-40.38	-13.00	-27.38
58007.28	High	50	2Tx	QPSK	H	-	-	-47.25	-13.00	-34.25

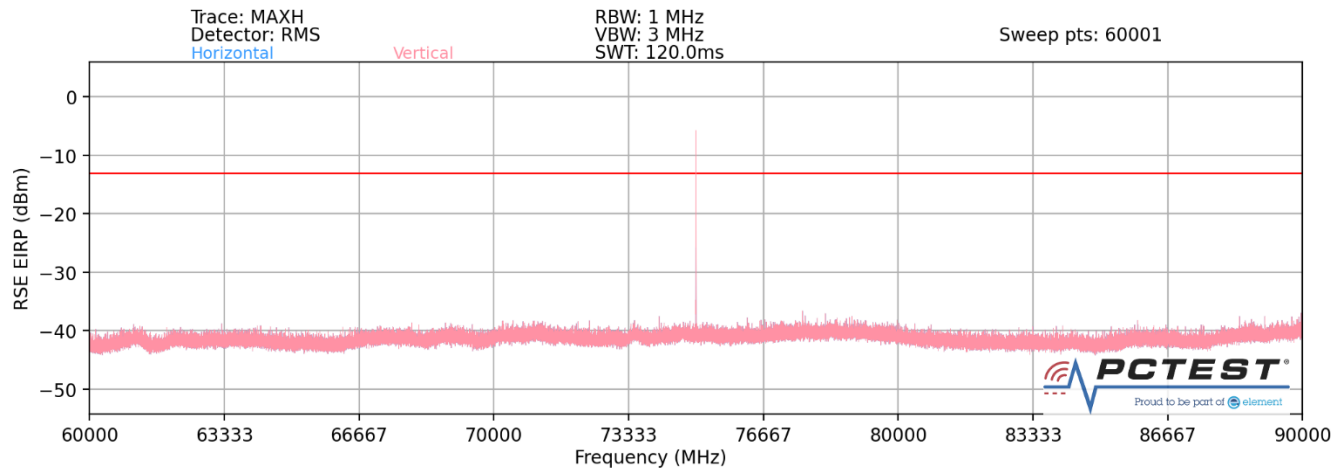
Table 7-68. Ant 2 - 2Tx - Spurious Emissions Table (40GHz - 60GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1.5 meter.

FCC ID: A3LSMS901U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 93 of 186

60GHz - 90GHz



Plot 7-38. Ant 2-n258-R2 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

Spurious Emissions EIRP Sample Calculation (n258-R2)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
74326.40	Low	50	2Tx	QPSK	V	354	104	-22.58	-13.00	-9.58
75001.74	Mid	50	2Tx	QPSK	V	354	103	-20.64	-13.00	-7.64
75676.07	High	50	2Tx	QPSK	V	358	102	-22.72	-13.00	-9.72

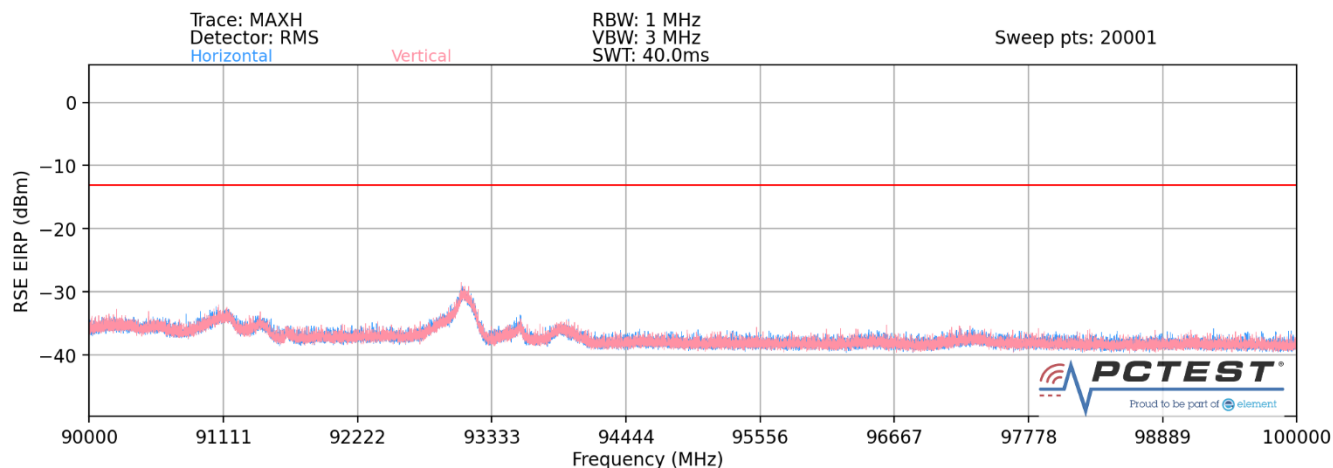
Table 7-69. Ant 2 - 2Tx - Spurious Emissions Table (60GHz - 90GHz)

Notes

- 1) The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
- 2) The Pre-scan was performed with Detector set to "RMS" and the Trace set to "Max Hold" and the above RSE measurements are taken with TRP.

FCC ID: A3LSMS901U	 PCTEST® Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 94 of 186

90GHz - 100GHz



Plot 7-39. Ant 2-n258-R2 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

Spurious Emissions EIRP Sample Calculation (n258-R2)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
97013.50	Low	50	2Tx	QPSK	V	-	-	-46.99	-13.00	-33.99
99980.00	Mid	50	2Tx	QPSK	V	-	-	-46.95	-13.00	-33.95
100006.43	High	50	2Tx	QPSK	V	-	-	-46.90	-13.00	-33.90

Table 7-70. Ant 2 - 2Tx - Spurious Emissions Table (90GHz - 100GHz)

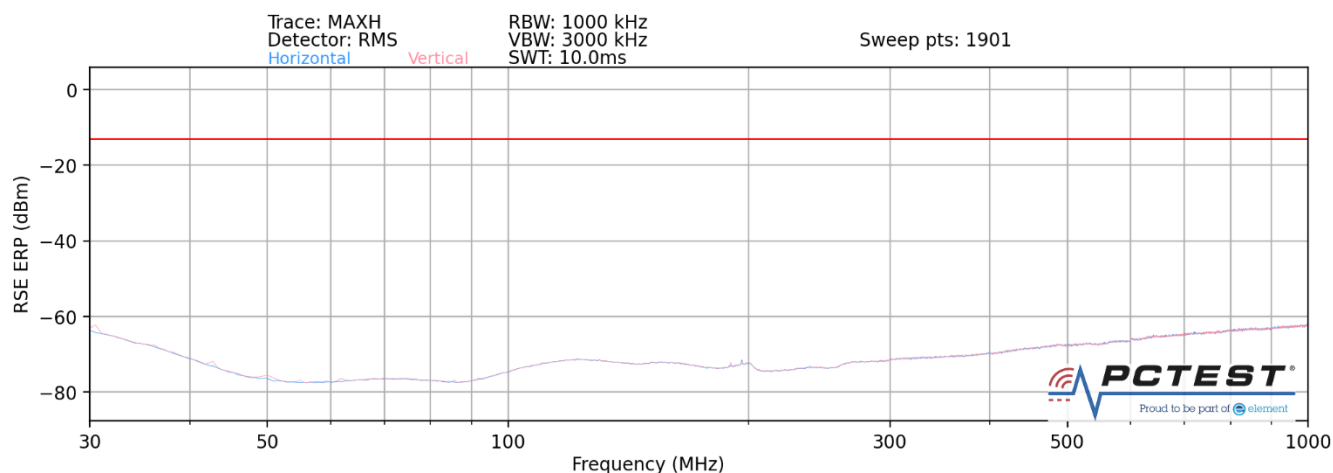
Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.

FCC ID: A3LSMS901U	 PCTEST® Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 95 of 186

Band n261 (M Patch)

30MHz - 1GHz



Plot 7-40. Ant 1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor Band 2)

Spurious Emissions ERP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE ERP level is calculated by applying the additional factors shown below for a test distance of 3 meter.

$$\text{RSE ERP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8 - 2.15 \text{ (dB)}$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Antenna Height [cm]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
180.23	Low	50	2Tx	QPSK	H	-	-	-71.84	-13.00	-58.84
192.57	Mid	50	2Tx	QPSK	H	-	-	-73.06	-13.00	-60.06
993.87	High	50	2Tx	QPSK	H	-	-	-60.12	-13.00	-47.12
603.32	Mid	50	2Tx	QPSK	H	-	-	-63.94	-13.00	-50.94

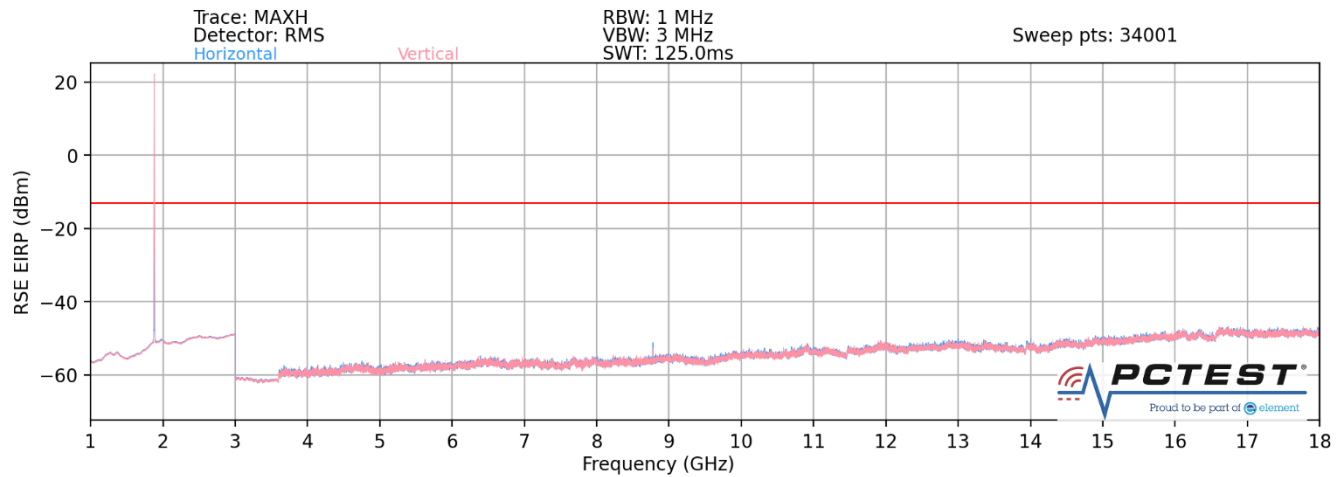
Table 7-71. Ant 1 - 2Tx - Spurious Emissions Table (30MHz - 1GHz)

Notes

The RSE ERP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 3 meter.

FCC ID: A3LSMS901U	 PCTEST® Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 96 of 186

1GHz - 18GHz



Plot 7-41. Ant 1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor Band 2)

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 3 meter.

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Antenna Height [cm]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
2513.90	Low	50	2Tx	QPSK	H	-	-	-76.55	-13.00	-63.55
8777.60	Mid	50	2Tx	QPSK	H	306	279	-56.88	-13.00	-43.88
15000.32	High	50	2Tx	QPSK	H	-	-	-64.04	-13.00	-51.04

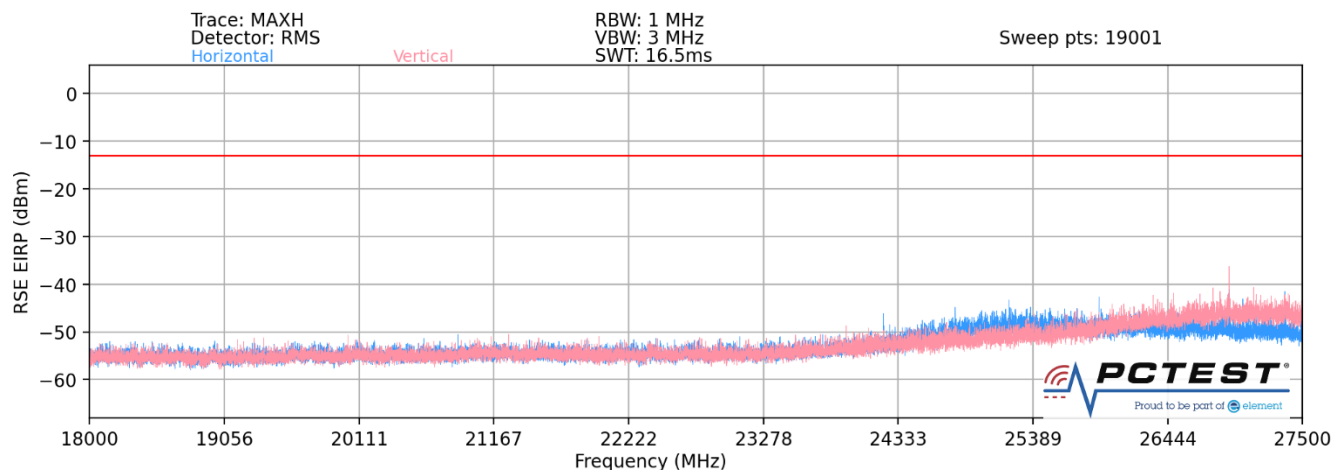
Table 7-72. Ant 1 - 2Tx - Spurious Emissions Table (1GHz - 18GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 3 meter.

FCC ID: A3LSMS901U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 97 of 186

18GHz - 27.5GHz



Plot 7-42. Ant 1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Antenna Height [cm]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
26926.00	Low	50	2Tx	QPSK	V	36	150	-45.41	-13.00	-32.41
26446.10	Mid	50	2Tx	QPSK	V	347	150	-48.79	-13.00	-35.79
26980.00	High	50	2Tx	QPSK	V	340	150	-48.79	-13.00	-35.79

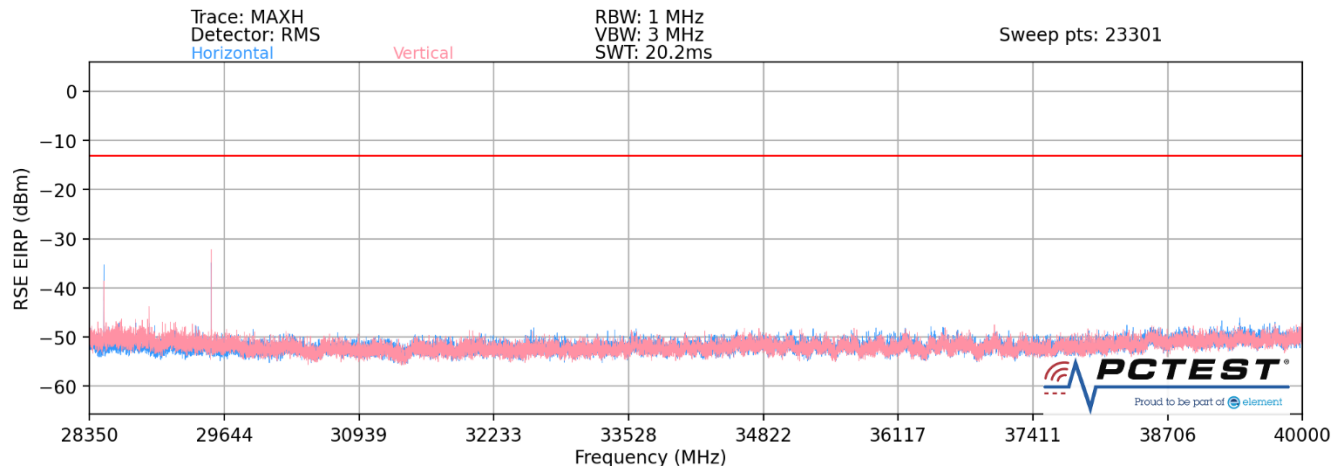
Table 7-73. Ant 1 - 2Tx - Spurious Emissions Table (18GHz - 27.5GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 1 meter.

FCC ID: A3LSMS901U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 98 of 186

28.35GHz - 40GHz



Plot 7-43. Ant 1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Antenna Height [cm]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
28488.00	Low	50	2Tx	QPSK	V	361	150	-43.90	-13.00	-30.90
28923.22	Mid	50	2Tx	QPSK	V	318	150	-48.73	-13.00	-35.73
29520.00	High	50	2Tx	QPSK	V	296	150	-39.49	-13.00	-26.49

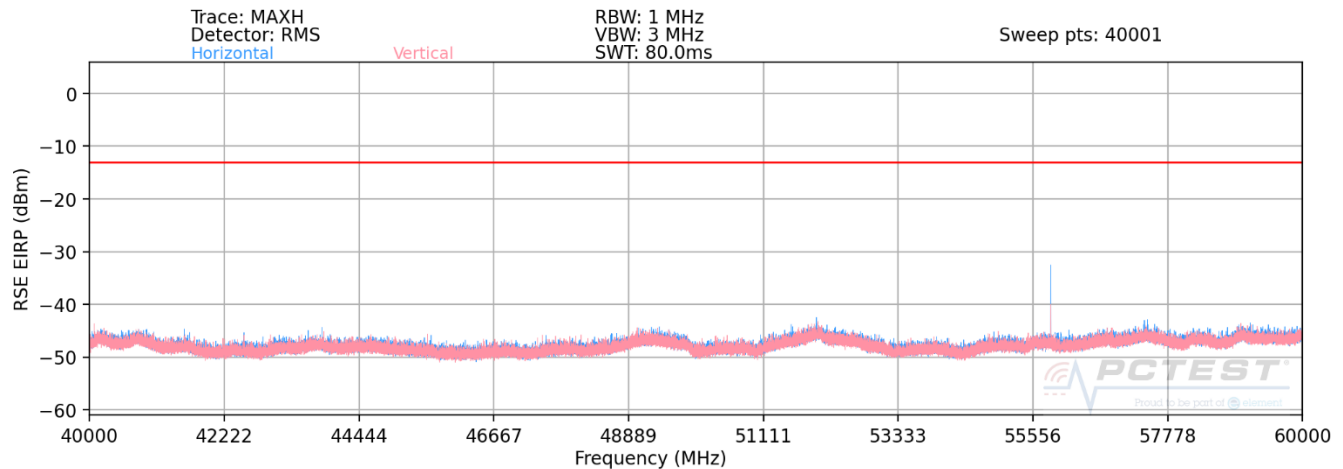
Table 7-74. Ant 1 - 2Tx - Spurious Emissions Table (28.35GHz - 40GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 1 meter.

FCC ID: A3LSMS901U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 99 of 186

40GHz - 60GHz



Plot 7-44. Ant 1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
55051.35	Low	50	2Tx	QPSK	H	142	279	-37.34	-13.00	-24.34
55851.08	Mid	50	2Tx	QPSK	H	142	272	-36.23	-13.00	-23.23
56650.80	High	50	2Tx	QPSK	H	137	265	-35.69	-13.00	-22.69

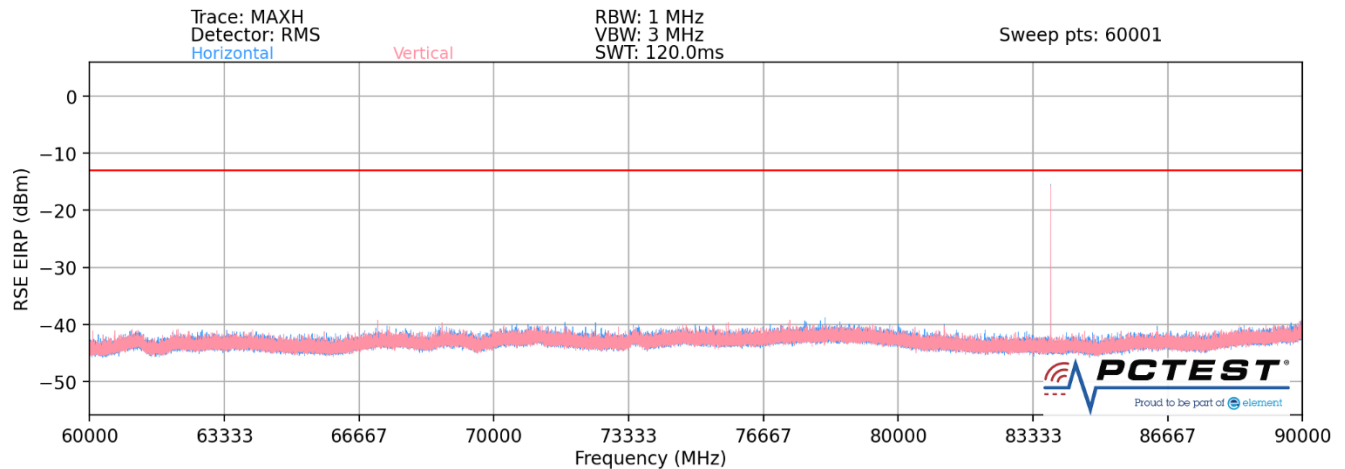
Table 7-75. Ant 1 - 2Tx - Spurious Emissions Table (40GHz - 60GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1.5 meter.

FCC ID: A3LSMS901U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 100 of 186

60GHz - 90GHz



Plot 7-45. Ant 1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
83561.00	Low	50	2Tx	QPSK	V	52	320	-26.50	-13.00	-13.50
83776.03	Mid	50	2Tx	QPSK	V	27	210	-25.89	-13.00	-12.89
83912.78	High	50	2Tx	QPSK	V	50	300	-27.43	-13.00	-14.43

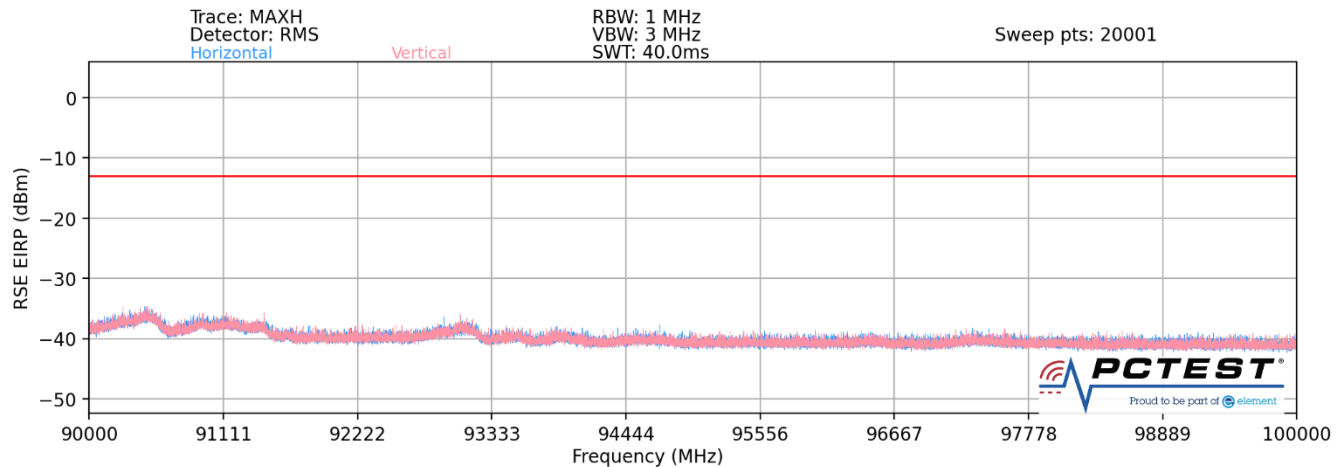
Table 7-76. Ant 1 - 2Tx - Spurious Emissions Table (60GHz - 90GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.

FCC ID: A3LSMS901U	 PCTEST® Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 101 of 186

90GHz - 100GHz



Plot 7-46. Ant 1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
110097.03	Low	50	2Tx	QPSK	V	-	-	-46.16	-13.00	-33.16
11170.30	Mid	50	2Tx	QPSK	V	-	-	-45.69	-13.00	-32.69
113318.80	High	50	2Tx	QPSK	V	-	-	-45.45	-13.00	-32.45

Table 7-77. Ant 1- 2Tx - Spurious Emissions Table (90GHz - 100GHz)

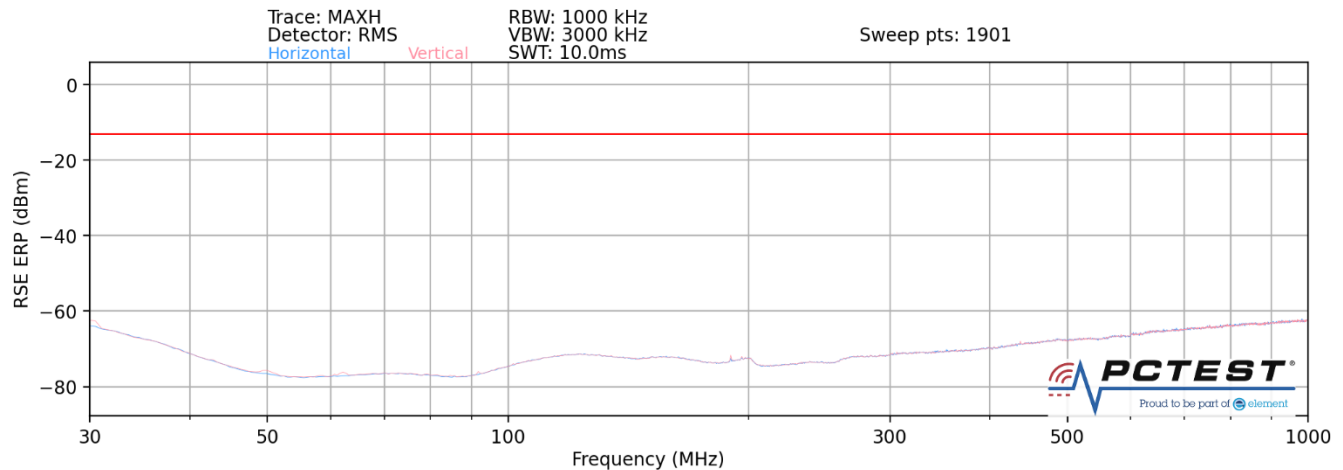
Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.

FCC ID: A3LSMS901U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 102 of 186

Band n261 (N Patch)

30MHz - 1GHz



Plot 7-40. Ant 2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor Band 2)

Spurious Emissions ERP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE ERP level is calculated by applying the additional factors shown below for a test distance of 3 meter.

$$\text{RSE ERP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8 - 2.15 \text{ (dB)}$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Antenna Height [cm]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
189.79	Low	50	2Tx	QPSK	V	-	-	-79.44	-13.00	-66.44
768.22	Mid	50	2Tx	QPSK	V	-	-	-62.35	-13.00	-49.35
922.91	High	50	2Tx	QPSK	V	-	-	-60.49	-13.00	-47.49

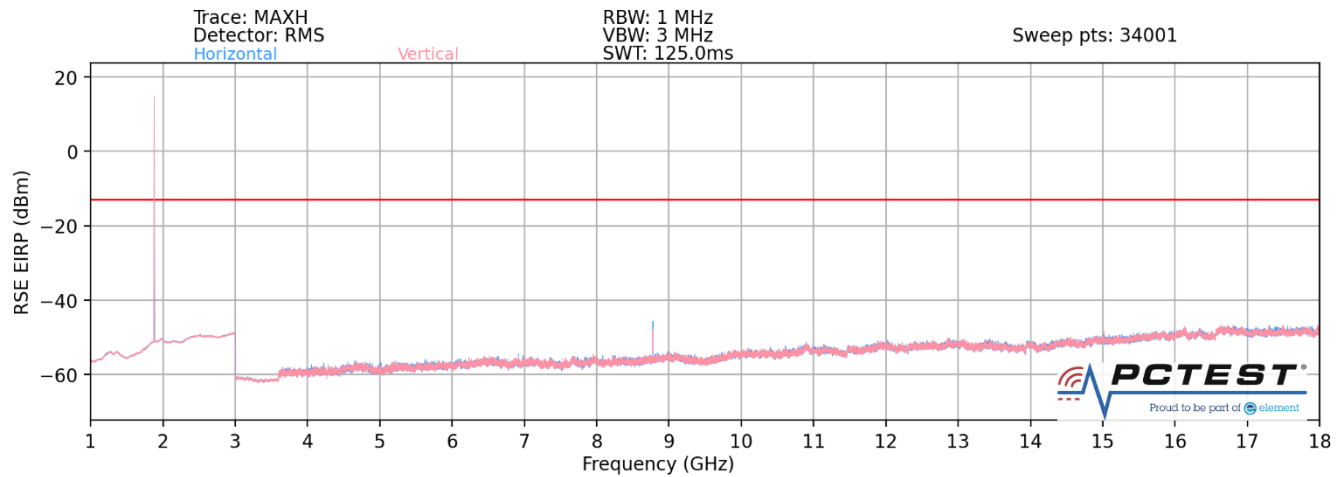
Table 7-78. Ant 2- 2Tx - Spurious Emissions Table (30MHz - 1GHz)

Notes

The RSE ERP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 3 meter.

FCC ID: A3LSMS901U	 Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 103 of 186

1GHz - 18GHz



Plot 7-41. Ant 2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor Band 2)

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 3 meter.

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Antenna Height [cm]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
4986.50	Low	50	2Tx	QPSK	H	-	-	-77.03	-13.00	-64.03
8777.69	Mid	50	2Tx	QPSK	H	301	240	-50.32	-13.00	-37.32
16016.48	High	50	2Tx	QPSK	H	-	-	-65.65	-13.00	-52.65

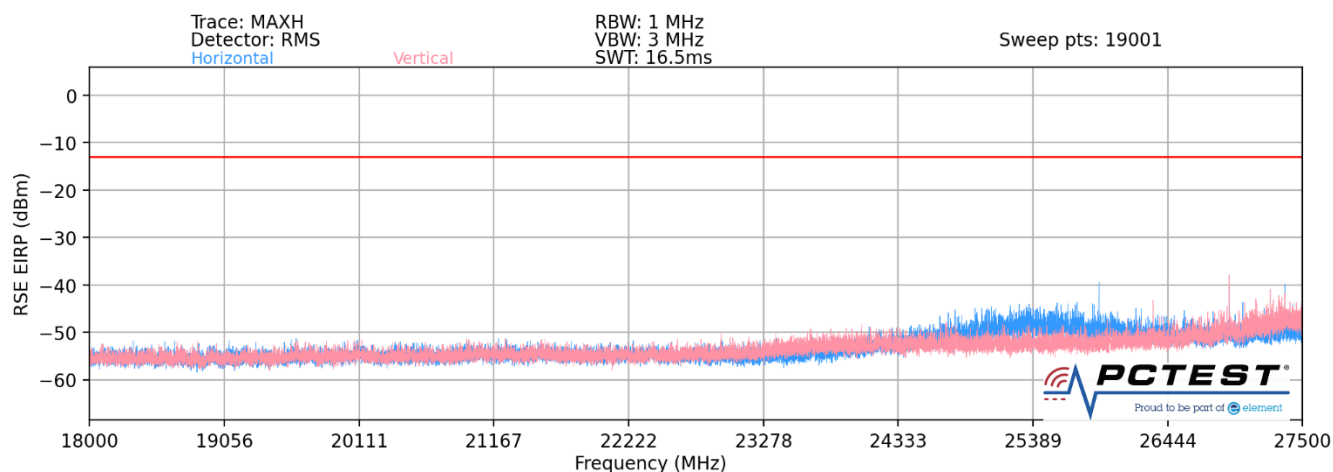
Table 7-79. Ant 2 - 2Tx - Spurious Emissions Table (1GHz - 18GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 3 meter.

FCC ID: A3LSMS901U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 104 of 186

18GHz - 27.5GHz



Plot 7-42. Ant 2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Antenna Height [cm]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
26926.50	Low	50	2Tx	QPSK	V	224	150	-48.18	-13.00	-35.18
26330.00	Mid	50	2Tx	QPSK	V	240	150	-50.55	-13.00	-37.55
25906.70	High	50	2Tx	QPSK	H	219	150	-46.33	-13.00	-33.33
26926.56	High	50	2Tx	QPSK	H	239	150	-45.62	-13.00	-32.62

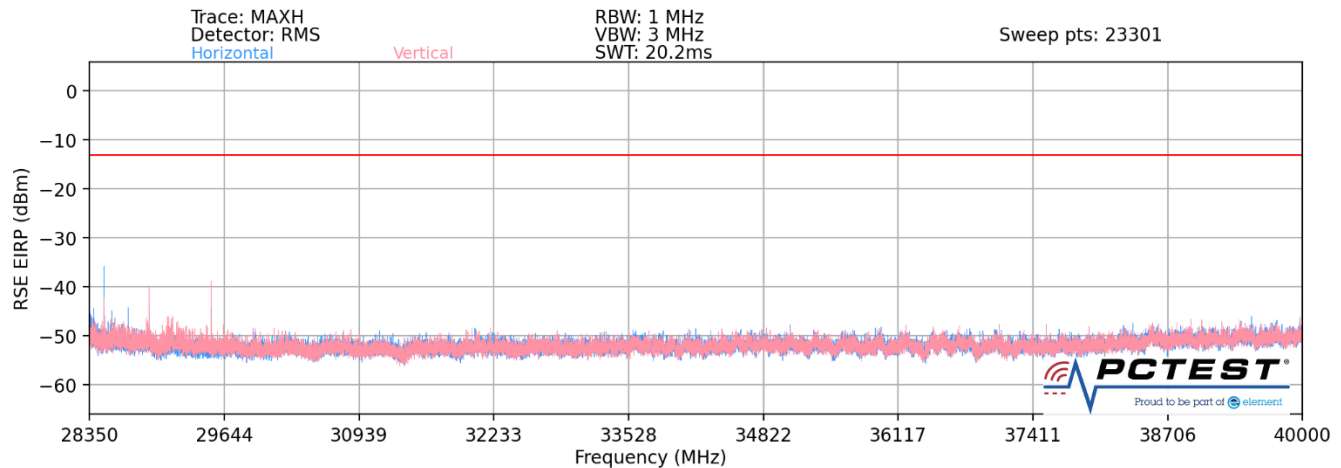
Table 7-80. Ant 2 - 2Tx - Spurious Emissions Table (18GHz - 27.5GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 1 meter.

FCC ID: A3LSMS901U	 PCTEST® Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 105 of 186

28.35GHz - 40GHz



Plot 7-43. Ant 2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Antenna Height [cm]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
28488.50	Low	50	2Tx	QPSK	H	310	150	-44.86	-13.00	-31.86
28722.20	Mid	50	2Tx	QPSK	H	275	150	-50.78	-13.00	-37.78
28207.00	High	50	2Tx	QPSK	V	205	150	-41.26	-13.00	-28.26
29519.00	High	50	2Tx	QPSK	V	243	150	-46.86	-13.00	-33.86

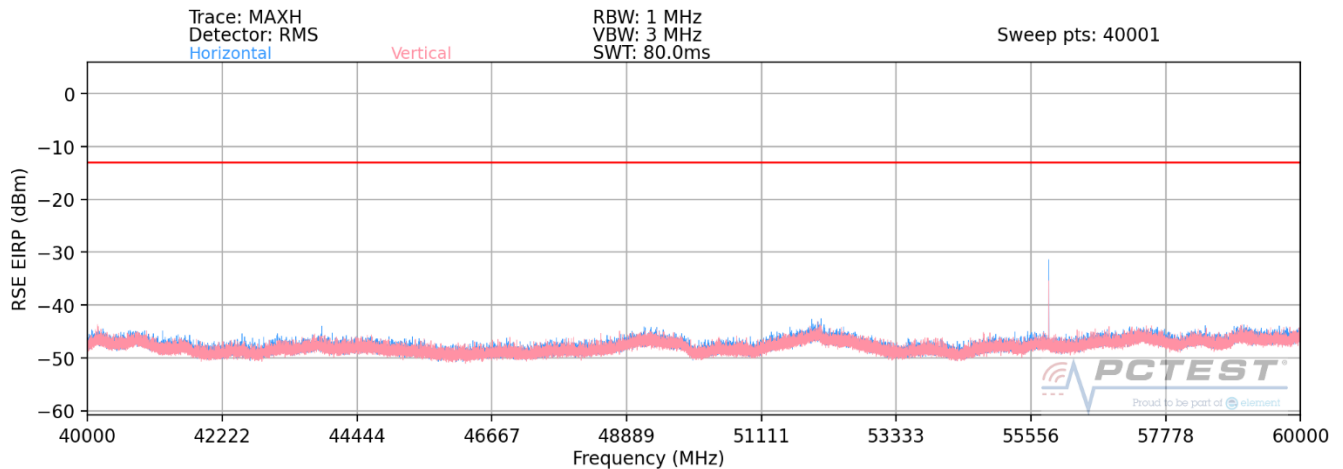
Table 7-81. Ant 2 - 2Tx - Spurious Emissions Table (28.35GHz - 40GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 1 meter.

FCC ID: A3LSMS901U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 106 of 186

40GHz - 60GHz



Plot 7-44. Ant 2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
55050.99	Low	50	2Tx	QPSK	H	3279	91	-30.96	-13.00	-17.96
55850.46	Mid	50	2Tx	QPSK	H	338	93	-36.00	-13.00	-23.00
56651.22	High	50	2Tx	QPSK	H	327	292	-41.42	-13.00	-28.42

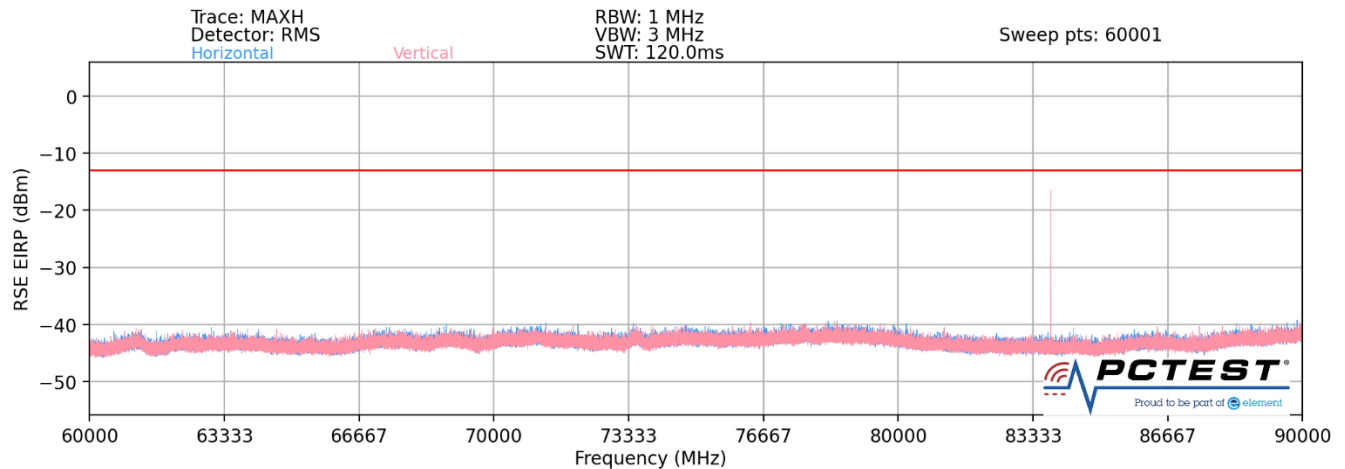
Table 7-82. Ant 2 - 2Tx - Spurious Emissions Table (40GHz - 60GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1.5 meter.

FCC ID: A3LSMS901U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 107 of 186

60GHz - 90GHz



Plot 7-45. Ant 2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
83661.18	Low	50	2Tx	QPSK	H	295	260	-18.56	-13.00	-5.56
83776.00	Mid	50	2Tx	QPSK	H	294	260	-16.64	-13.00	-3.64
83936.75	High	50	2Tx	QPSK	H	226	255	-17.79	-13.00	-4.79

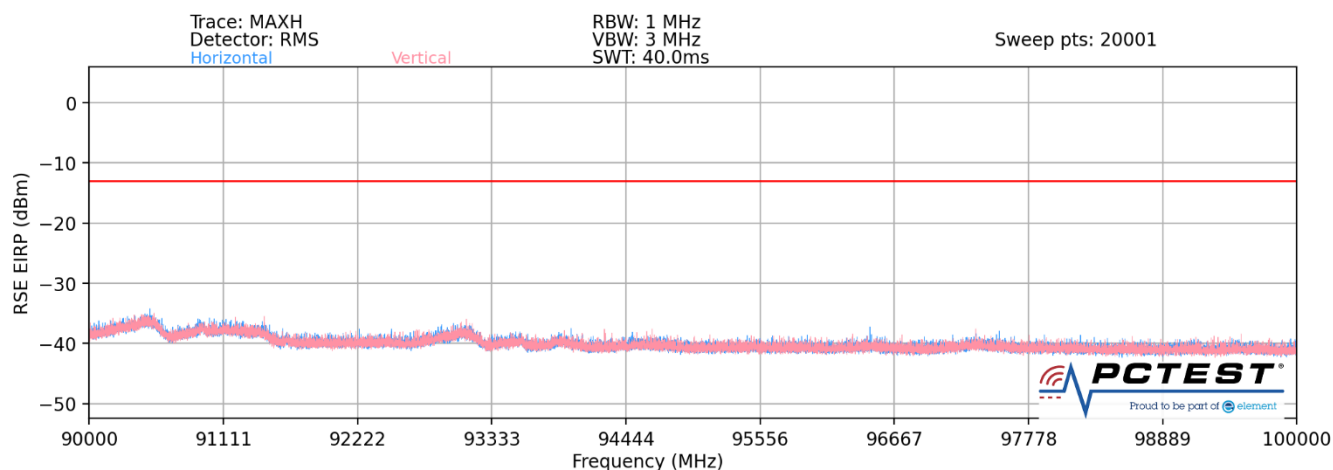
Table 7-83. Ant 2 - 2Tx - Spurious Emissions Table (60GHz - 90GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.

FCC ID: A3LSMS901U	 PCTEST® Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 108 of 186

90GHz - 100GHz



Plot 7-46. Ant 2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor B2)

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
110109.53	Low	50	2Tx	QPSK	H	-	-	-45.55	-13.00	-32.55
111690.97	Mid	50	2Tx	QPSK	H	-	-	-45.61	-13.00	-32.61
113289.85	High	50	2Tx	QPSK	H	-	-	-45.46	-13.00	-32.46

Table 7-84. Ant 2 - 2Tx - Spurious Emissions Table (90GHz - 100GHz)

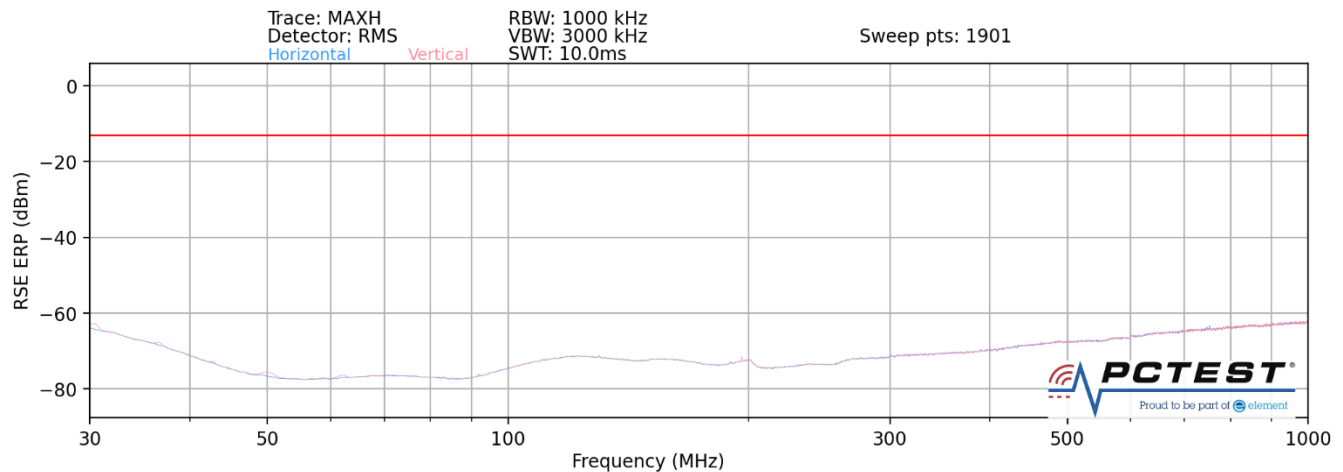
Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.

FCC ID: A3LSMS901U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 109 of 186

Band n260 (M Patch)

30MHz - 1GHz



Plot 7-47. Ant 1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor Band 2)

Spurious Emissions ERP Sample Calculation (n260)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE ERP level is calculated by applying the additional factors shown below for a test distance of 3 meter.

$$\text{RSE ERP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8 - 2.15 \text{ (dB)}$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Antenna Height [cm]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
191.56	Low	50	2Tx	QPSK	H	-	-	-74.20	-13.00	-43.31
748.77	Mid	50	2Tx	QPSK	H	-	-	-61.84	-13.00	-48.84
998.46	High	50	2Tx	QPSK	H	-	-	-60.62	-13.00	-47.62
710.53	Mid	50	2Tx	QPSK	H	302	250	-56.31	-13.00	-43.31

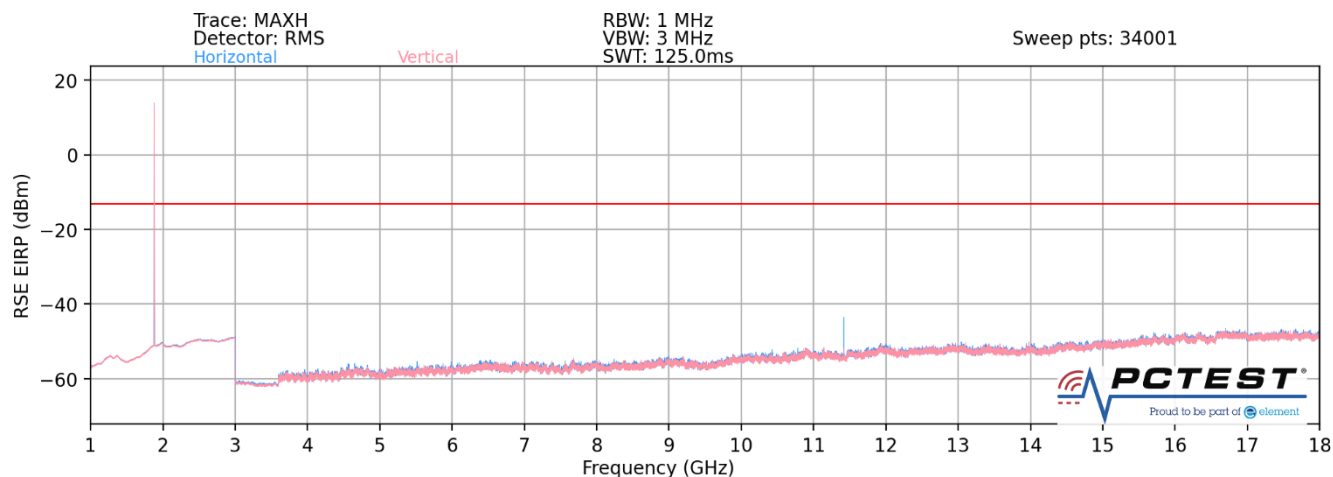
Table 7-85. Ant 1 - 2Tx - Spurious Emissions Table (30MHz - 1GHz)

Notes

The RSE ERP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 3 meter.

FCC ID: A3LSMS901U	 PCTEST® Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 110 of 186

1GHz - 18GHz



Plot 7-48. Ant 1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor Band 2)

Spurious Emissions EIRP Sample Calculation (n260)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 3 meter.

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Antenna Height [cm]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
9510.20	Low	50	2Tx	QPSK	H	-	-	-68.60	-13.00	-55.60
11416.00	Mid	50	2Tx	QPSK	H	21	334	-51.69	-13.00	-38.69
17988.60	High	50	2Tx	QPSK	H	-	-	-61.51	-13.00	-48.51

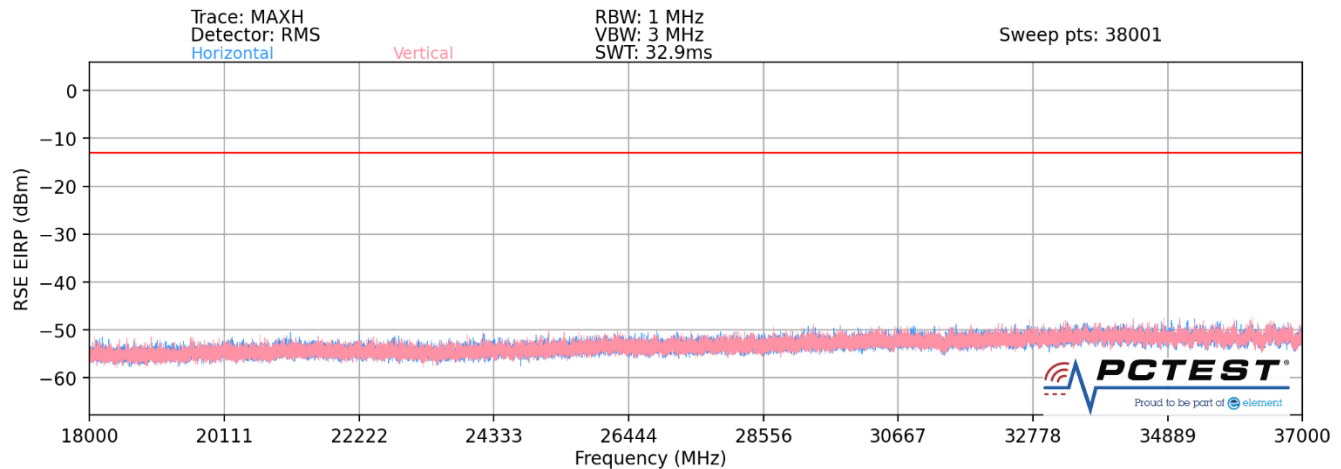
Table 7-86. Ant 1 - 2Tx - Spurious Emissions Table (1GHz - 18GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 3 meter.

FCC ID: A3LSMS901U	 PCTEST® Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 111 of 186

18GHz – 37GHz



Plot 7-49. Ant 1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx – EN-DC Anchor Band 2)

Spurious Emissions EIRP Sample Calculation (n260)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
18925.00	Low	50	2Tx	QPSK	H	-	-	-56.76	-13.00	-43.76
21919.20	Mid	50	2Tx	QPSK	H	-	-	-57.55	-13.00	-44.55
27421.20	High	50	2Tx	QPSK	H	-	-	-56.88	-13.00	-43.88

Table 7-87. Ant 1 - 2Tx - Spurious Emissions Table (18GHz – 37GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 1 meter.

FCC ID: A3LSMS901U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2109080099-06.A3L	Test Dates: 09/15/2021-11/08/2021	EUT Type: Portable Handset		Page 112 of 186